XXXIX.—*Notes on the Natural History of East Finmark.*

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[Continued from p. 286.]

[Plate XXVII.]

ECHINODERMATA.

In East Finmark the Echinodermata are very fully represented; but the percentage of species found by myself in this class is much less than in those classes with which I have already dealt. The reason is obvious. I did not employ the instruments most suitable for their capture, namely, either a trawl or wide-meshed dredge. As usual, I was more intent on the smaller and generally less studied animals, and my fine dredge-bag, quickly filling with mud, passed over comparatively little ground; and therefore the capture of many of the larger animals, such as Echinodermata, was not to be expected.

I propose in dealing with the Echinodermata to depart from the rule which I have observed in previous parts of these notes of only giving the names of East Finmark species which had not been found by myself, and to briefly indicate their locality and its authority. The authorities on whom I have relied are as follows:—

1. Danielssen (D. C.).—"Beretning om en zoologisk Reise foretagen en Sommeren 1857," Nyt Mag. for Naturvidenskaberne, vol. xi. 1861, p. 1.
2. Sars (Michael).—'Oversigt af Norges Echinodermer,' 1861.
3. Danielssen (D. C.) and Koren (A.).—(*a*) Holothuroidea, (*b*) Asteroidea, (*c*) Echinoidea, in 'The Norwegian North-Atlantic Expedition, 1876–1878.' 1882, 1884, and 1892.
4. Grieg (J. A.).—Ophiuroidea in 'The Norwegian North-Atlantic Expedition, 1876–1878.' 1893. The word 'Vöringen' in the following notes, which was the name of the vessel employed, indicates that the authority is in the Norwegian North-Atlantic Expedition Reports.
5. Grieg (J. A.).—"Oversigt over det nordlige Norges Echinodermer," Bergens Museum Aarbog, 1902.
6. Östergren (Hjalmar).—"The Holothuroidea of Northern Norway," Bergens Museum Aarbog (1902), 1903, p. 3.

A full account of the distribution of the species and full synonymy will be found in the treatises on the different orders in Römer and Schaudin's 'Fauna Arctica.'

Ophiuroidea.

Ophiura Sarsii, Lütken. In all the Sydvaranger fiords.

—— *albida*, Forbes. Vadsö (*Danielssen*).

—— *robusta*, Ayres. Varanger, Bög, and Lakse Fiords. Also Svolvær, Lofoten Islands, shallow water to 125 fathoms.

—— *carnea*, M. Sars. Vadsö, in 50–100 fathoms (*M. Sars*).

—— *affinis*, Lütken. Unusually large in the Varanger Fiord; also at Svolvær, Lofoten Islands.

Ophiocten sericeum, Forbes. Off Vardö, in 148 fathoms ('Vöringen,' Stat. 262).

**Amphiura elegans*, Leach. I found this species at Svolvær, Lofoten Islands. It is not yet known in East Finmark, though it has been recorded from as far east as the Murman coast by Jarzynsky.

Ophiopholis aculeata, Linné. In all the fiords.

Ophiacantha bidentata, Retzius. Varanger and Lang Fiords, down to 125 fathoms (*A. M. N.*); Porsanger Fiord (*Grieg*).

Ophioscolex glacialis, Müller & Troschel. Off Vardö, in 148 fathoms, four small specimens ('Vöringen,' Stat. 262).

—— *purpureus*, Düben & Koren. Dr. Hjort, in the 'Michael Sars,' dredged this species in 1900 in the Porsanger Fiord (*Grieg*).

[*Asteronyx Lovéni*, Müller & Troschel. Herr Grieg informs me (*in litt.*) that this species was inserted by mistake in the East Finmark column of his paper. It was taken by M. Sars in Öxfjord, West Finmark, and not in Oxfjord in East Finmark.]

Gorgonocephalus Lamarcki, Müller & Troschel. Herr Grieg writes to me that a specimen of this species from Varanger Fiord (Vadsö) is in the Bergen Museum.

—— *eucnemis*, Müller & Troschel. Taken by M. Sars at Vadsö in 1857 on *Primnoa lepadifera*; but some doubt attaches to the identification of the young specimen (*Sars, 2*).

—— *Agassizii*, Stimpson. This species is in the Bergen Museum from the Varanger Fiord (*Grieg*). This is the only instance of its occurring on the European coast. It is known from N.E. America, Greenland, and Jan Mayen.

Asteroidea.

Archaster tenuispinus, Düben & Koren. Porsanger Fiord and off Vardö, in 127–148 fathoms ('Vöringen').

Plutonaster Parelii, Düben & Koren, var. *longibrachialis*, Dan. & Kor. In the same two dredgings as the preceding ('Vöringen').

Ctenodiscus crispatus, Retzius. Inner reach of Lang Fiord, in 5–30 fathoms; Bög Fiord, in 100–120 fathoms; and Varanger Fiord, 100–125 fathoms.

Leptophycaster arcticus, M. Sars. Tana Fiord and off Vardö, in 127–148 fathoms ('Vöringen').

Psilaster andromeda, Müller & Troschel. Danielssen and Koren write of this species, "along the entire Norwegian coast," and Grieg has inserted it in the East Finmark column on this authority; but though I have searched carefully I have been unable to find any actual statement of its occurrence there. It may certainly be expected, as Jarzynsky has found it on the Murman coast.

Pentagonaster granularis, Retzius. Sværholt, by the 'Michael Sars,' 1901; Tana Fiord and off Vardö ('Vöringen').

Goniaster phrygianus, Parelius. Porsanger Fiord and off Vardö ('Vöringen'); Sværholt (*Grieg*).

Poraniomorpha rosea, Danielssen & Koren. Dredged by Herr Hjort in the 'Michael Sars' in 1901, S.S.W. of Kibergnæsset in the Varanger Fiord, in 188–216 metres (*Grieg*).

Hexaster obscurus, Perrier. Dredged by the 'Michael Sars' in 1901 east of Ekero in the Varanger Fiord, in 180–216 metres (*Grieg*).

Pteraster militaris, O. F. Müller. Vadsö (*Danielssen*); Sværholt (*Grieg*).

—— *pulvillus*, M. Sars. Lang Fiord, in 25 fathoms (*A. M. N.*); Sværholt (*Grieg*).

Crossaster papposus, Fabricius. In Lang and Klosterelv Fiords.

—— *affinis*, Brandt. One small specimen of this ten-armed *Crossaster* was dredged by the 'Vöringen' off Vardö (Stat. 262). It is a question whether it is really distinct from *C. papposus*, with which Ludvig unites it; but, on the other hand, Danielssen and Koren write that after careful examination of exterior features and internal skeleton they have "arrived at the conclusion that the difference between *Solaster affinis* and *Solaster papposus* is so great and also so constant that we must still affirm the former to be a distinct species."

Solaster endeca, Gmelin. Herr Grieg writes to me that Dr. Johan Hjort has collected this species in Kongs Fiord. This small fiord will not be found marked on ordinary maps; it is situated in long. 47° 20′ E.

—— *syrtensis*, Verrill. Dredged by the 'Michael Sars' in 1901 to the east of Ekero in the Varanger Fiord, in 188 metres (*Grieg*). I do not know this eight- or nine-armed form. Ludvig, in 'Fauna Arctica Seesterne,' 1900, unites it with *S. endeca*.

Cribrella sanguinolenta, O. F. Müller. In Lang and Klosterelv Fiords.

[*Pedicellaster typicus*, M. Sars. Herr Grieg informs me that he inserted this species in his East Finmark column because it

was dredged by the 'Vöringen' in Barents Sea (*i. e.* Stat. 267, lat. 71° 42′ N., long. 37° 1′ W., in 148 fathoms*).]

Asterias rubens, Linné. Varanger Fiord.

—— *Mülleri*, M. Sars. Vadsö (*Danielssen*); Sværholt (*Grieg*).

[? —— *glacialis*, Linné. Grieg marks this in his East Finmark column, but gives no locality, and, indeed, states that it is found up the whole coast to Komag Fiord; but that fiord is in West Finmark.]

Asterias Linckii, Müller & Troschel.

1733. *Pentadactylosaster reticulatus digitis prælongatis*, Linck, De Stellis Marinis, p. 34, pls. ix. & x. no. 16.
1842. *Asterias Linckii*, Müller & Troschel, System der Asteriden, p. 18.
1869. *Asteracanthion stellionura*, Perrier, Recherches sur les Pédicellaires et les Ambulacres des Astérias et des Oursins, p. 48, pl. i. figs. 10 *a–d*.
1882. *Asterias Gunneri*, Danielssen & Koren, "Fra den norske Nordhavsexpedition," Nyt Mag. for Naturvid. vol. xxvii. p. 268.
1884. *Asterias Gunneri*, Dan. & Kor. Norw. North Atlant. Exped., Asteroidea, p. 7, pls. ii., iii. figs. 8, 9.
1884. *Asterias stellionura*, iid. ibid. p. 14, pl. iv. figs. 1–9.
1887. *Asterias stellionura*, Levinsen, Dijmphna-Togtets zool.-botan. Udbytte, p. 395, pl. xxxiv. figs. 7, 8, *a*, *b*.

Levinsen's figures and description should be consulted when determining this species. His fig. 7 illustrates the adambulacral papillæ &c., and shows the absence of those adambulacral spines to which I shall call attention in my notice of the next species.

The type of "*A. Gunneri*" was taken by the 'Vöringen' in Advent Bay, Spitsbergen, while "*A. stellionura*" was taken by the same expedition not only a little to the south of Spitsbergen, but also off Vardö in 148 fathoms (Stat. 262). Lovén has also recorded it from the Varanger Fiord, and more recently it has been again dredged by the 'Michael Sars' in 180 metres off Ekero, at the mouth of the same fiord.

Asterias panopla, Stuxberg.

1878. *Asterias panopla*, Stuxberg, "Echinod. Nordenskiöldska Exped. 1875–76," Öfvers. K. Vet.-Akad. Förhand. xxxv. p. 32.
1881. *Asterias panopla*, F. Jeffrey Bell, "Species of the Genus *Asterias*," Proc. Zool. Soc. p. 505.
1884. *Asterias panopla*, Dan. & Kor. Norweg. North Atlant. Exped., Asteroidea, p. 17, pl. v.
1887. *Asterias panopla*, Levinsen, Dijmphna-Togtets zool.-bot. Udbytte, p. 394.

* I have not in these papers taken into account the 'Vöringen' stations 267, 270, 273, and 275, which were to the north of East Finmark. If this were done, other species would be added to the fauna.

I dredged this species on two occasions in quite shallow water, in 5–30 fathoms, in the inner part of Lang Fiord. It is new to the Norwegian fauna. The size of one of these specimens is nearly double that represented in Danielssen and Koren's plate, and the single row of spines passing down the centre of the back of each arm is very conspicuous, as in the figure referred to. On the other hand, in much smaller specimens collected in the Kara Sea by the 'Dijmphna' expedition, for which I am indebted to the Copenhagen Museum, this central row of spines is scarcely noticeable. The character which at once distinguishes *A. panopla* from *A. Linckii* consists in the spines on the under surface of the arms, where bordering the ambulacra is seen a row of slender spines which are in pairs, and exterior to these another row of well-developed and conspicuous spines (see Dan. & Kor. pl. v. fig. 2, at the base of the left-hand side of the arm). The following quotation from Levinsen well describes the adambulacral papillæ and spines, outside of which is the other row of spines to which I have just referred :—"Papillæ adambulacrales biseriales appositæ, inter papillas singulas serici interioris jam pedicellariæ, jam spinæ, vestigia transformationis in pedicellarias sæpe exhibentes, sitæ. Spinæ extra papillas adambulacrales per paria dispositæ, spinis singulorum parium ad basin concurrentibus, supra divergentibus."

Echinoidea.

Echinus norvegicus, Düben & Koren. Rather small specimens were taken by the 'Vöringen' off Vardö (Stat. 262).

—— *esculentus*, Linné. Herr Grieg writes to me that this species has recently been taken by Dr. Johan Hjort in the Varanger Fiord to the south of Kiberg.

Strongylocentrotus dröbachiensis, O. F. Müller. Varanger, Lang, and Klosterelv Fiords.

—— *pictus*, Norman. Varanger Fiord, 100–125 fathoms; Klosterelv and Lang Fiords, in 3–30 fathoms. This form—whether species or variety—is characterized among points already described by the very large size of the "sphérides" (*Lovén*). Professor Lovén showed me the same form under another name in the Stockholm Museum. Unfortunately I did not make a note at the time, and have forgotten what that name was.

Schizaster fragilis, Düben & Koren. Taken in mid-channel in the Varanger Fiord in 100–125 fathoms. A specimen measured 75 millim. long, 65 millim. broad, and 40 millim. deep.

Spatangus purpureus, O. F. Müller. Sværholt (*Grieg*).

Echinocardium flavescens, O. F. Müller. Vadsö (*M. Sars*); Sværholt (*Grieg*).

—— *cordatum*, Pennant. Sværholt (*Grieg*)*.

Echinocyamus pusillus, O. F. Müller. Vadsö and Bög Fiord.

Holothuroidea.

Genus Stichopus, Brandt.

Stichopus tremulus (Gunnerus).

"In the Christiania Museum there is a specimen which G. O. Sars caught in the Varanger Fiord" (*Nordgaard*, 1903).

Genus Cucumaria, Jæger.

Cucumaria frondosa (Gunnerus).

I procured young specimens (= *C. fucicola*, Forbes) between tide-marks at Vadsö.

Genus Phyllophorus, Grube.

Phyllophorus pellucidus (Fleming).

Michael Sars recorded that he had taken two specimens of this species in the Varanger Fiord near Vadsö, in 60–80 fathoms, in 1857.

Genus Psolus, Oken.

Psolus phantapus (Strussenfeldt).

Bög and Lang Fiords, in 5–30 fathoms (*A. M. N.*). Michael took it in the Varanger Fiord in 1857.

Genus Trochostoma, Danielssen & Koren.

Trochostoma boreale (M. Sars).

1861. *Molpadia borealis*, M. Sars, Oversigt af Norges Echinodermer, p. 116, pls. xii., xiii.

1877. *Haplodactyla arctica*, v. Marenzeller, "Cœlenteraten, Echinodermen und Würmer der k. k. öster.-ungar. Nordpol-Exped.," Denkschr. math.-nat. Klasse kais. Akad. d. Wiss. Zool. vol. xxxv. p. 29, pl. iv. fig. 1.

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* I have inserted this species and *Spatangus purpureus* in this list because Grieg (5) gives the locality Sværholt; yet he does not mark them in his East Finmark column at p. 37. Was that an accidental omission, or are there two places named Sværholt?

1882. *Trochostoma Thomsonii*, Danielssen & Koren, Norwegian North-Atlantic Exped., Holothuroidea, p. 42, pls. vii., viii., ix. figs. 38–41, pl. xiii. fig. 4, and var. *maculatum*, p. 94, pl. xiii. figs. 5, 6.
1882. *Trochostoma boreale*, iid. ibid. p. 64, pl. x. figs. 7–11.
1882. *Trochostoma arcticum*, iid. ibid. p. 65, pl. ix. figs. 1–5, pl. x. fig. 6, pl. xiii. fig. 3.

Ludvig, in 'Fauna Arctica,' vol. i. Holothuroidea, p. 161, unites all the forms described by Danielssen and Koren under the *Molpadia borealis*, M. Sars.

The form called *Trochostoma arcticum* by Danielssen and Koren was dredged by the 'Vöringen' in the Porsanger Fiord in 127 fathoms (Stat. 260), and in the same depths in the Tana Fiord (Stat. 261).

Genus Ankyroderma, Danielssen & Koren.

Ankyroderma Jeffreysii, Danielssen & Koren.

1879. *Ankyroderma Jeffreysii*, Danielssen & Koren, "Fra den Norske Nordhavsexpedition Echinodermer, III.," Nyt Mag. for Naturvid. vol. xxv. p. 128, pls. v. & vi. figs. 11–19, 21.
1879. *Ankyroderma affine*, iid. ibid. p. 133, pls. v. & vi. figs. 22–28.
1882. *Ankyroderma Jeffreysii*, Dan. & Kor. Norw. N.-Atlant. Exped., Holothuroidea, p. 67, pls. x., xi., xii. figs. 12–28.
1882. *Ankyroderma affine*, iid. ibid. p. 71, pl. xii. figs. 29–36.

Ludvig (*l. c.*) has united the two forms to which the describers had assigned specific rank.

This most interesting new form discovered by the 'Vöringen' was dredged at Stations 260, 261, 262, at the Porsanger and Tana Fiords, and also off Vardö in 127–148 fathoms. It possesses anchors like those of a *Synapta*, but instead of resting for support upon a single calcareous plate, as in that genus, they are attached at the central junction of the "heads" of five or six "battledore"-shaped spicules, the long "handles" of which spicules radiate from the centre. Other spicules not unlike those of a *Thyonidium* are profusely scattered throughout the epidermis.

The *Ankyroderma musculus* (Risso) from the Mediterranean comes very near to this species (*vide* Ludvig, Zeits. f. wiss. Zool. vol. li. p. 571, pl. xxix.).

Genus Eupyrgus, Lütken.

Eupyrgus scaber, Lütken. (Pl. XXVII. figs. 1–3.)

1857. *Eupyrgus scaber*, Lütken, Oversigt over Grönlands Echinodermata, p. 22.
? 1857. *Eupyrgus scaber*, Barrett, "Description of Four new Species of

Echinodermata," Ann. & Mag. Nat. Hist. ser. 2, vol. xx. p. 46, pl. iv. figs. 2 *a*, *b*.

1868. *Echinosoma hispidum*, Semper, Reisen in Archipel der Philippinen, vol. ii. Holothurien, p. 44, pl. x. figs. 7, 10, 11, 13, 15, 16.

1868. *Eupyrgus scaber*, iid. ibid. p. 268.

1886. *Eupyrgus scaber*, Theel, Report 'Challenger' Exped., Holothuroidea, pt. 2, p. 49.

I dredged this species, which is new to the Norwegian coast, in the Varanger Fiord, in 125–150 fathoms, and also in Bög Fiord in 100–120 fathoms. It had been obtained by the 'Vöringen' in the sea to the north of East Finmark (Stat. 267), and has a distribution ranging from Labrador and Greenland to Spitsbergen and Barents and Kara Seas.

The calcareous deposits in the test of *Eupyrgus scaber* have not been well figured, and I therefore now illustrate them. It is true that Barrett * figured two deposits which he referred to this species; but if they belonged to it at all, they were certainly abnormal. I have been unable to find any such irregular forms either in a type specimen from Greenland received from Dr. Lütken soon after he described the species or in these East Finmark specimens which I have now taken.

These calcareous deposits (fig. 2) consist of tables which are round or nearly so, with irregular margin, perforated with about twenty to twenty-five openings with simple margins, the openings around the base of the spine being larger than those outside them, and generally oval in form, while the smaller outer holes are round; the spire is very long (fig. 3), longer than the diameter of the table from the centre of which it rises; it gradually tapers to a point which is rough or slightly spinous at the point; it is built up of three rods, which are united to each other by about four cross-bars. The surface of the test is densely clothed with these tables which are situated in it, while the spires are projected freely from the test (fig. 1). The genus *Eupyrgus* being entirely devoid of feet, it is not improbable that these spires of the calcareous plates may in some degree supply a help to locomotion through the mud, aided by the muscular movements of the animal's body; but no doubt they are primarily a means of defence, as well as serve the purpose of strengthening the cutis.

* The Holothurian which Barrett described as *Eupyrgus hispidus* is, of course, no *Eupyrgus*, but must be called *Echinocucumis hispidus* (Barrett), = *Echinocucumis typicus*, M. Sars; but *Echinosoma hispidum* of Semper is the present species.

Genus Synapta, Eschscholtz.

Synapta Buski, M'Intosh.

1864. *Synapta tenera*, Norman, Brit. Assoc. Rep. for 1863, p. 106.
1866. *Synapta Buski*, M'Intosh, Proc. Roy. Soc. Edinb. p. 611, woodcut 6.
1871. *Synapta tenera*, Brady & Robertson, Proc. Zool. Soc. p. 690, pl. lxxi. figs. 1–3.
1892. *Synapta Buski*, F. Jeffrey Bell, Cat. Brit. Echin. Brit. Mus. p. 34, pl. i. fig. 3 (wrongly numbered in letterpress and on plate, fig. 2).
1898. *Labidoplax Buski*, Östergren, "Das System den Synaptiden," Œfvers. K. Vet.-Akad. Förhand. p. 115.

Östergren, in his paper on "The Holothuroidea of Northern Norway" (Bergens Museum Aarbog (1892) 1893, p. 12), tells us that "The specimens of *Synapta inhærens* which Danielssen and Koren (1882) mention from the Porsanger Fiord, long. 70° 54′ N., have proved on my examination to be *Labidoplax Buski*," and also the specimens which Danielssen (1861) recorded under the same name from Vadsö.

Genus Chirodota, Eschscholtz.

Chirodota lævis, Fabricius. (Pl. XXVII. fig. 4.)

1780. *Holothuria lævis*, Fabricius, Fauna Grœnlandica, p. 353.
1806. *Holothuria pellucida*, Vahl, in Müller, Zool. Dan. iv. p. 17, pl. cxxxv. fig. 1.
1857. *Chirodota læve*, Lütken, Oversigt over Grönlands Echinodermata, p. 16, figs. 2–4.
1861. *Chirodota pellucida*, M. Sars, Oversigt af Norges Echinodermer, p. 124, pls. xiv.–xvi.
1867. *Chirodota typica*, Selenka, "Beit. z. Anat. und System. der Holothurien," Zeits. f. wiss. Zool. vol. xvii. p. 366, pl. xx. figs. 126, 127.
1867. *Chirodota tigellum*, id. ibid. p. 366.
1881. *Chirodota lævis*, Duncan & Sladen, Memoir on the Echinodermata of the Arctic Sea to the West of Greenland, p. 12, pl. i. figs. 14–19.

Dredged in the Varanger Fiord in 125–150 fathoms; and also in Lang Fiord, within the narrows, in 5–30 fathoms.

Its range extends from N.E. America and Labrador coast, Greenland, and Spitsbergen, to the Murman coast and Kara Sea.

The illustrations in M. Sars's work of this species are extremely good; nevertheless, if the wheel-deposits as figured by him be compared with the figure given by Duncan and Sladen, I think it will be conceded that, if corresponding wheels were found in a fossil state, or had such apparently

different spicules been procured from different parts of the world, it would be believed that they belonged to different species. The fact is that the figures of Sars do not represent the fully adult wheel, while that figured by Duncan and Sladen is quite mature. In the latter condition the calcareous deposit is much more developed, the central and narrow portions of the spokes have the greatest thickness, and the rest of the spokes the next greatest thickness; while the spokes themselves have been widened and a considerable part of the intermediate spaces have been filled up with later and thinner deposit; the crenation of the rim is not very easily seen.

Genus Myriotrochus, Steenstrup.

Myriotrochus Rinkii, Steenstrup. (Pl. XXVII. figs. 5–9.)

1851. *Myriotrochus Rinkii*, Steenstrup, Videnskab. Middel. fra den naturhist. Forening i Kjöbenhavn, p. 55, pl. iii. figs. 5–7.
1852. *Chirodota brevis*, Huxley, Sutherland's Voyage Baffin's Bay, vol. ii., Appendix, p. ccxi.
1877. *Myriotrochus Rinkii*, Theel, "Quelques Holothuries des Mers de la Nouvelle Zemble," Nov. Acta Reg. Soc. Sc. Upsala, ser. iii. p. 3, pl. i.
1881. *Myriotrochus Rinkii*, Duncan & Sladen, Memoir Echinodermata of the Arctic Sea to the West of Greenland, p. 15, pl. i. figs. 20–24.
1882. *Myriotrochus Rinkii*, Danielssen & Koren, Norwegian North-Atlantic Exped., Holothuroidea, p. 28, pl. v. figs. 1–4, pl. xiii. fig. 1.
1892. *Myriotrochus Rinkii*, Ludvig, "Die Rädchen der Synaptiden," Zeits. f. wiss. Zool. vol. liv. p. 358, pl. xvi. figs. 12–14.
1900. *Myriotrochus Rinkii*, Ludvig, Fauna Arctica, p. 160.
1902. *Myriotrochus Rinkii*, Östergren, "Holothuroidea of Northern Norway," Bergens Mus. Aarbog, no. 9, p. 14.

Ludvig and other recent authors have united *Oligotrochus vitreus*, M. Sars (Fauna littor. Norveg. part 3, 1877, p. 49, pl. vii. fig. 1), with *Myriotrochus*; but Östergren, in his recently published paper, again separates them. He has examined a large number of specimens, and his opinion I here follow, though not without much doubt. I have frequently taken the form *Oligotrochus vitreus* in West Norway, but on now examining them I can find no spicules; they have evidently from some cause been destroyed. Not having it in my power therefore to carry out such an investigation as that made by Herr Östergren, I am in no position to call in question the justice of his view. While *Myriotrochus* (= *Oligotrochus*) *vitreus* lives in deep water on the west and south coasts of Norway, *Myriotrochus Rinkii* (typical) has only now, in Östergren's paper, been added to the fauna of the colder fiords of West and East Finmark.

I dredged *Myriotrochus Rinkii* in 1890 in 2–5 fathoms in Klosterelv Fiord, and in 5–30 fathoms in the inner part of Lang Fiord.

The two forms above referred to are the only known recent representatives of the genus; but M. Schlumberger has described under the name *Stueria elegans* ("Note sur les Holothuridées du Calcaire Grossier," Bull. Soc. Géol. de France, sér. 3, vol. xvi. p. 440, figs. 12–14) spicules which it seems difficult to distinguish from those of the recent form. In a subsequent paper ("Seconde Note sur les Holothuridées fossiles du Calcaire Grossier," *l. c.* vol. xviii. p. 191) M. Schlumberger refers the species which he had previously described to the genus *Myriotrochus*, and adds a second fossil species, *Myriotrochus operculum*.

The wheel-spicules of *Myriotrochus Rinkii* are very beautiful objects. Most of the illustrations which have been already given are not fully satisfactory, as not giving a side view; but the oblique figures of Ludwig (figs. 12 & 13) are excellent. His fig. 14 seems to have been drawn from a specimen in which calcification has been carried further than in any specimen previously figured or in any that I have myself seen. The spokes have widened at the middle of their length and become united with each other, but small intervening spaces remain open near their junction with the central boss.

In the early stage of a wheel from the central boss there are developed all round radiating bars or spokes (fig. 5). These spokes at their distal extremity then widen out laterally, and, uniting with each other, form the tyre which completes the wheel; then from the upper and inner edge of the tyre a series of triangular processes are projected horizontally inwards, and overhang the spokes which are attached to the other edge of the tyre; these triangular lobes are always somewhat more numerous than the spokes. The structure will be best understood by comparison of the figures here given—fig. 6 representing the upper, fig. 7 the under surface, and fig. 8 the wheel as seen obliquely. The spokes at their attachment to the central boss are bent slightly upwards, and then with a gentle arching curve downwards and ultimately upwards again they form junction with the tyre*. The double bend of the spokes, which is very elegant in itself, keeps the entire thickness of the wheel as seen from the side (fig. 9). I do not find any material difference in the wheels of this species as found in East Finmark when compared

* Ludvig's fig. 13 admirably illustrates the double curve of the spokes.

with others in my collection from Greenland; the number of spokes in the Finmark specimens ranges from sixteen to twenty-one.

Genus Trochoderma, Theel.

Trochoderma elegans, Theel.

1877. *Trochoderma elegans*, Theel, "Quelques Holothuries des Mers de la Nouvelle Zemble," Nov. Acta Reg. Soc. Sc. Upsala, ser. iii. p. 11 (separate copy), pl. ii.

This genus, like the last, is furnished with wheel-like spicules, but the tyre is rounded and armed with spines instead of furnished with triangular inward-directed processes, as in *Myriotrochus*.

Östergren writes:—"I have now before me a specimen of this species which is new to the Norwegian fauna; it was obtained by G. O. Sars at Mortensnes, in the Varanger Fiord" ("Holothuroidea of Northern Norway," Bergens Mus. Aarbog, 1902, p. 21).

EXPLANATION OF PLATE XXVII.

Fig. 1. *Eupyrgus scaber*, Lütken, magnified; the actual length indicated by the line below.
Fig. 2. The same. Spicules as seen from above.
Fig. 3. The same. Spicules as seen from the side.
Fig. 4. *Chirodota lævis*, Fabricius. A spicule.
Fig. 5. *Myriotrochus Rinkii*, Steenstrup. Wheel-spicule in early stage of development.
Fig. 6. The same. Wheel-spicule seen from above.
Fig. 7. The same. Wheel-spicule seen from below.
Fig. 8. The same. Wheel-spicule seen obliquely.
Fig. 9. The same. Wheel-spicule seen from the side.

XL.—*On new Species of* Histeridæ *and Notices of others.*

By G. Lewis, F.L.S.

This is the twenty-second paper on the Histeridæ published in this Magazine, and the last before the issue of a new catalogue of the species belonging to the Family. In these papers about 418 species have been described.

The Munich Catalogue of 1868 recorded 1151 species, but this number is reduced to about 1050 by the names that fall into synonymy. About 2316 species are known at present, and of these 1727 are represented in my collection; 631 of these are authors' types, 296 species are represented by